Competition and coexistence of ultrashort pulses in passive mode-locked lasers under dissipative-soliton-resonance conditions

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Résumé en anglais	It has been shown by numerical simulation that the dissipative soliton resonance suppresses the appearance of new ultrashort pulses in the laser cavity that usually arise with increasing pumping. As a consequence, the energy of the pulses can reach an arbitrarily large value, which is determined by the corresponding pump power. The mechanism of the suppression is due to interaction between pulses through a saturable gain medium. The generation remains multistable: the number of pulses in steady-state operation depends on the initial conditions. In the case of multipulse generation, all pulses have identical durations, shapes, peak intensities, and chirps. The effect of maintaining single pulse operation with increasing pump power can be used to generate high-energy pulses.
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